

**REGULATION:  
QUALITY ASSURANCE PROGRAMS  
FOR MEDICAL DIAGNOSTIC X-RAY  
INSTALLATIONS  
N.J.A.C. 7:28-22**

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**New Jersey Department of Environmental Protection  
Bureau of Radiological Health  
Adopted and Effective on January 16, 2001**

**SUBCHAPTER 22 QUALITY ASSURANCE PROGRAMS FOR MEDICAL  
DIAGNOSTIC X-RAY INSTALLATIONS**

**7:28-22.1 PURPOSE, SCOPE AND APPLICABILITY**

(a) The purpose of this Subchapter is to increase protection to the public and radiation workers from unnecessary exposure to radiation and to reduce the occurrence of misdiagnosis caused by faulty equipment and operator error.

(b) This Subchapter establishes requirements for the development and implementation of quality assurance (QA) programs to ensure that registrants of diagnostic x-ray equipment who perform diagnostic x-ray procedures in the healing arts achieve consistent high quality imaging and improve diagnosis while reducing unnecessary radiation to the patients and workers. This Subchapter further establishes certain responsibilities of registrants of radiation sources used in the practice of diagnostic radiology. This Subchapter also establishes the qualifications and training requirements for medical physicists, medical physicist assistants and qualified individuals designing or implementing QA programs in accordance with this Subchapter. Certification requirements and associated fees are also established for medical physicists and medical physicist assistants.

(c) All registrants of medical diagnostic x-ray imaging equipment and computed tomography equipment, which is used for performing diagnostic radiography, fluoroscopy, x-ray bone densitometry, or computed tomography in the healing arts, are required to develop and continually implement quality assurance programs. Such equipment includes, but is not limited to, equipment used in performing diagnostic radiology procedures in hospital, medical, podiatric, chiropractic, industrial, school, and government facilities.

(d) The provisions of this subchapter are not applicable to diagnostic radiographic mammography equipment that must comply with the Federal Mammography Quality Standards Act, 42 U.S.C.A. §263(b), or N.J.A.C. 7:28-15.4.

**7:28-22.2 DEFINITIONS**

The words and terms listed below, when used in this subchapter, shall have the following meanings, unless the context clearly indicates otherwise.

"Dedicated interventional special procedure suite" means a room dedicated to the performance of fluoroscopic interventional special procedures. These procedures include but are not limited to, angioplasty, angiography, cardiac catheterization, etc.

"Immediate supervision" means in-room supervision.

"Initially" means no later than the date of the required implementation of the quality assurance program specified in N.J.A.C. 7:28-22.14 or within 60 days of the date the x-ray machine is acquired.

"Qualified medical physicist for the supervision of quality assurance programs for computed tomography equipment" means an individual who meets the qualifications for a "Qualified medical physicist for the supervision of quality assurance programs for computed tomography equipment" in N.J.A.C. 7:28-22.12(b).

"Qualified medical physicist for the supervision of quality assurance programs for diagnostic x-ray imaging" means an individual who meets the qualifications for "Qualified medical physicist for the supervision of quality assurance programs for diagnostic x-ray imaging" in N.J.A.C. 7:28-22.12(a).

"Qualified medical physicist assistant in fluoroscopy" means an individual who meets the qualifications for "Qualified medical physicist assistant in fluoroscopy" in N.J.A.C. 7:28-22.12(d).

"Qualified medical physicist assistant in radiography" means an individual who meets the qualifications for "Qualified medical physicist assistant in radiography" in N.J.A.C. 7:28-22.12(c).

"Registrant" means a person who is required to register a source of radiation with the Department pursuant to this chapter.

### 7:28-22.3 GENERAL PROVISIONS

(a) No person shall perform or permit the performance of a diagnostic x-ray procedure in the healing arts using radiographic, fluoroscopic, x-ray bone densitometry, or computed tomography(CT) equipment unless the registrant has developed and continues to implement a quality assurance program in accordance with the compliance schedule in N.J.A.C. 7:28-22.14 and that satisfies the requirements of this subchapter.

(b) Subject to (c) below, the quality assurance program shall contain the following elements:

1. A quality assurance program manual as specified in N.J.A.C. 7:28-22.4;
2. Quality control tests as specified in N.J.A.C. 7:28-22.5, 22.6 or 22.7 (as appropriate for the diagnostic x-ray equipment);
3. An initial and annual (not to exceed 14 months) Medical Physicist's QC Survey as specified in N.J.A.C. 7:28-22.8, 22.9, or 22.10; and
4. A corrective action plan as required by N.J.A.C. 7:28-22.4(a)4.

(c) Registrants of x-ray bone densitometer equipment are required only to implement and continue to carry out the quality assurance programs for such equipment which are required by N.J.A.C. 7:28-22.11.

(d) The Department has prepared Compliance Guidance Documents, listed below, which may be used by the registrants as assistance in developing and implementing quality assurance programs required by this Subchapter. The Compliance Guidance Documents are listed below:

1. Compliance Guidance for a Medical Diagnostic X-ray Quality Assurance Program Manual,
2. Compliance Guidance for Radiographic Quality Control,
3. Compliance Guidance for Fluoroscopic Quality Control,
4. Compliance Guidance for Computed Tomography Quality Control.

(e) The Compliance Guidance Documents listed in N.J.A.C. 7:28-22.3(d) are available from the Department, and may be obtained by contacting the Department at The Bureau of Radiological Health, P. O. Box 415, Trenton, NJ 08625-0415 and can be obtained from the Radiation Protection Program web page at "<http://www.state.nj.us/dep/rpp>".

(f) A registrant or an organization representing a group of registrants may request approval from the Department of an alternative quality assurance program to be used by that specific registrant or a specified list of registrants. The application must fully document the provisions of the alternative quality assurance program and identify how the alternative program differs from the requirements in this Subchapter. The applicant must demonstrate that the alternative program will be equally effective in achieving consistent high quality imaging and improving diagnosis while reducing unnecessary radiation to the patients and workers as the quality assurance program required by this Subchapter. The applicant may request that a specific quality control test or other quality assurance provision be excluded from the applicant's quality assurance program if performing the test or provision is not possible or is inappropriate because of the nature of the applicant's equipment or practice.

(g) The Department, with approval of the Commission on Radiation Protection, may approve, or approve with conditions, a request for an alternative quality assurance program. To be approved, the alternative program must be equally effective in achieving consistent high quality imaging while reducing unnecessary radiation to the patients and the workers as the quality assurance program required by this Subchapter.

(h) The Department may deny a request for an alternative quality assurance program should it determine that the alternative program would not be equally effective in achieving consistent high quality imaging and improving diagnosis while reducing unnecessary radiation to the patients and the workers as the quality assurance program required by this Subchapter.

(i) Any registrant who receives approval from the Department for an alternative quality assurance program shall comply with the terms of approval.

(j) Any registrant may use forms or procedures that differ from any forms or procedures contained in the Compliance Guidance Documents referenced in N.J.A.C. 7:28-22.3(d) without approval provided the form or procedure is sufficient to demonstrate compliance with the regulatory provision.

(k) Any registrant who submits an application for an alternative quality assurance program shall comply with the quality assurance program requirements of this Subchapter until such time as the application for an alternative quality assurance program is approved by the Department.

(l) No person shall engage in the use or employment of dishonesty, fraud, deception, misrepresentation, false promise or false pretense while engaged in activities relating to this Subchapter.

(m) No person shall falsify or make misleading statements on any record or report required by this Subchapter.

(n) No person shall make misleading or false statements to a representative of the Department or Commission.

(o) No person shall falsify any records, nor destroy nor steal any property or records, relating to quality assurance as required by this Subchapter.

#### 7:28-22.4 QUALITY ASSURANCE PROGRAM MANUAL

(a) The registrant of any diagnostic medical x-ray equipment used in the healing arts shall develop and continuously implement a quality assurance program that includes a quality assurance program manual that contains the following elements:

1. A list of clearly identified individuals and assigned responsibilities for maintaining the quality assurance program and for performing the quality control tests.
2. Quality Control (QC) measures which shall include:
  - i. QC Tests to be performed and the frequency of each test;
  - ii. List of equipment to be tested;
  - iii. Acceptability limits for each test performed;
  - iv. Description of each QC test procedure;
  - v. Sample forms for each QC test performed;
  - vi. Processor and solutions maintenance; and
  - vii. Annual Medical Physicist's QC Survey.
3. Policies and Procedures which shall include:
  - i. Policy for holding patients and for presence of individuals in room during radiation exposure;
  - ii. Policy for pregnant patients and employees;
  - iii. Policy for gonadal shielding;
  - iv. A description of the orientation program for operators of radiographic, fluoroscopic and CT equipment including the duration and content of that program;
  - v. Procedures for proper use and maintenance of equipment;
  - vi. Policies and employee responsibilities concerning personnel radiation monitoring;
  - vii. Policy for releasing films;
  - viii. Policy for labeling films (i.e., patient's statistics, facility information);
  - ix. A commitment to perform a Radiation Safety Survey of the Environs in accordance with N.J.A.C. 7:28-15.10 on newly installed x-ray equipment within 60 days of installation and an initial Medical Physicist's QC Survey as required by N.J.A.C. 7:28-22.8(a), 22.9(a), or 22.10(a) as appropriate for the type of x-ray equipment;
  - x. Policy for using technique charts; and
  - xi. Policy and rules on Radiation Safety as required by N.J.A.C. 7:28-15.9(a)8.
4. A plan for taking corrective actions which shall include:
  - i. Measures to be taken when the x-ray equipment is determined to need repair, service or calibration, and
  - ii. Measures to be taken when the processor is determined to need repair or service.
5. Record keeping which shall include:
  - i. Records for the most recent one year of the QC tests performed by the registrant;

- ii. Records of the initial Medical Physicist's QC Survey plus the two most recent QC Surveys;
  - iii. Records of corrective actions for the most recent two years; and
  - iv. Personnel monitoring records.
- 6. Reference manuals (if any) and their location.
  - 7. A provision describing how the registrant and the qualified medical physicist will review the QA program annually.

(b) The Department has prepared a Compliance Guidance for a Medical Diagnostic X-ray Quality Assurance Program Manual, referenced at N.J.A.C. 7:28-22.3(d)1, which may be used by the registrants in developing and implementing the quality assurance program required by this Subchapter. The Compliance Guidance Document listed in N.J.A.C. 7:28-22.3(d)1 is available from the Department, and may be obtained by contacting the Department at The Bureau of Radiological Health, P. O. Box 415, Trenton, NJ 08625-0415 and can be obtained from the Radiation Protection Program web page at "<http://www.state.nj.us/dep/rpp>".

#### 7:28-22.5 QUALITY ASSURANCE PROGRAM FOR MEDICAL DIAGNOSTIC RADIOGRAPHIC EQUIPMENT

(a) The registrant of any medical diagnostic radiographic equipment used in the healing arts shall develop and continuously implement a quality assurance program that includes the following elements:

- 1. A quality assurance program manual that satisfies the requirements of N.J.A.C. 7:28-22.4;
- 2. Quality control tests, procedures, frequencies and standards, including but not limited to, those identified in TABLE 1, Radiographic Quality Control Requirements;
- 3. An initial and annual thereafter (not to exceed 14 months) Medical Physicist's QC Survey as specified in N.J.A.C. 7:28-22.8(a); and
- 4. A corrective action plan required by N.J.A.C. 7:28-22.4(a)4.



TABLE 1

Radiographic Quality Control Requirements (To be performed by appropriately trained facility personnel)			
Item	Required Test or Procedure	Frequency	Standard
1.	Equipment Warm-up Procedure	Daily, each day x-rays are taken	Warm up tube; ensure equipment is working properly
2.	Processor Quality Control (Sensitometry/Densitometry)	Daily, each day x-rays are taken	Medium Density $\pm 0.15$ Optical Density (OD), Density Difference $\pm 0.15$ OD, Base + Fog + 0.03 OD of operating levels
3.	Laser Film Printer Quality Control	Weekly	As specified in Table 2, Fluoroscopic Quality Control Requirements
4.	Darkroom Cleanliness	Weekly	Free from dust and dirt
5.	Processor Maintenance and Chemical Solutions	Initially and every 2 months (more frequently if needed)	Manufacturers' specifications
6.	Facility's Equipment Visual Checklist	Initially and quarterly	All tests passed
7.	Film and Chemical Shelf Life	Initially and quarterly	Use film and chemicals with earliest expiration date first
8.	Light Field/X-ray Field Alignment	Initially, quarterly and after service	Not to exceed 2% of Source to Image Distance (SID)
9.	Repeat Analysis	Semiannually (review rejected films immediately for corrective action)	No standard, but goal should be < 5%
10.	Artifact Evaluation	Examine every film for artifacts, in-depth evaluation semiannually	No significant artifacts
11.	Analysis of Fixer Retention	Initially and semiannually	$\leq 5$ micrograms/sq. centimeter or $\leq 0.05$ grams/sq. meter

TABLE 1 (Cont.)

Radiographic Quality Control Requirements (To be performed by appropriately trained facility personnel)			
Item	Required Test or Procedure	Frequency	Standard
12.	Darkroom Fog	Initially, semiannually and after service	$\leq 0.05$ Optical Density Difference
13.	Screen-Film Contact/Cassette Integrity/Screen Cleanliness	Initially and annually or as needed	No areas of poor contact > 2cm. in diameter
14.	Lead Aprons, Gloves, Gonadal and Thyroid Shield Integrity Check	Initially and annually	No breaks in protective garments
15.	Medical Physicist's QC Survey	Initially and annually	As required in N.J.A.C. 7:28-22.8
16.	Quality Assurance Program Review	Initially and annually	As required in N.J.A.C. 7:28-22.4(a)7

(b) The Department has prepared Compliance Guidance Documents, listed in N.J.A.C. 7:28-22.3(d)1 and 2, which may be used by the registrants in developing and implementing the quality assurance programs required by this Subchapter. The Compliance Guidance Documents are available from the Department, and may be obtained by contacting the Department at the Bureau of Radiological Health, P. O. Box 415, Trenton, NJ 08625-0415 and can be obtained from the Radiation Protection Program web page at "<http://www.state.nj.us/dep/rpp>".

(c) The registrant shall ensure that individuals performing manual processing of films in medical diagnostic radiography shall use the time/temperature method. An example of the time/temperature method is described in the Compliance Guidance Documents listed in N.J.A.C. 7:28-22.3(d)2.

(d) The registrant shall ensure that individuals performing quality control tests described in TABLE 1, Radiographic Quality Control Requirements, have an appropriate level of training to perform the tests competently.

(e) If any of the test results from item 2 in TABLE 1, Radiographic Quality Control Requirements, indicate that the x-ray processing does not meet the standards in TABLE 1, the registrant shall immediately initiate steps to bring the processing into compliance. Films shall not be processed until the processing meets the standards required in TABLE 1.

(f) If any of the test results from item 3 in TABLE 1, Radiographic Quality Control Requirements, indicate that the laser film printer does not meet the standards in TABLE 1, the registrant shall immediately initiate steps to repair the laser film printer to meet the standards. Films shall not be processed until the processing meets the standards.

(g) If any of the test results from items 6, 8, 10, 11, 12, 13, 14, and 15 in TABLE 1, Radiographic Quality Control Requirements, indicate that the x-ray equipment does not meet the standards in TABLE 1, the registrant shall immediately initiate corrective actions to meet the standards. All corrective actions shall be completed within 30 days.

(h) No person shall use or permit the use of film or processing chemicals beyond the expiration dates on the containers.

(i) The registrant shall ensure that records of each corrective action, repair and service are maintained for at least two years.

(j) The registrant shall ensure that test records for items 2, 3, 5, 6, 8, 9, 10, 11, 12, 13, and 14 in TABLE 1, Radiographic Quality Control Requirements, are maintained for at least one year.

(k) The registrant shall ensure that the initial Medical Physicist's QC Survey is permanently maintained, and that the records of the annual Medical Physicist's QC Survey are maintained for at least two years.

(l) The registrant shall ensure that the records of the Quality Assurance Program Review are maintained for at least two years.

#### 7:28-22.6 QUALITY ASSURANCE PROGRAM FOR MEDICAL DIAGNOSTIC FLUOROSCOPIC EQUIPMENT

(a) The registrant of any medical diagnostic fluoroscopic equipment used in the healing arts shall develop and continuously implement a quality assurance program that includes the following elements:

1. A quality assurance program manual that satisfies the requirements of N.J.A.C. 7:28-22.4;
2. Quality control tests, procedures, frequencies and standards, including but not limited to, those identified in TABLE 2, Fluoroscopic Quality Control Requirements;
3. An initial and annual thereafter (not to exceed 14 months) Medical Physicist's QC Survey as specified in N.J.A.C. 7:28-22.9(a); and
4. A corrective action plan required by N.J.A.C. 7:28-22.4(a)4.

TABLE 2

Fluoroscopic Quality Control Requirements (To be performed by appropriately trained facility personnel)			
Item	Required Test or Procedure	Frequency	Standard
1.	Equipment Warm-up Procedure	Daily, each day fluoroscopy is performed	Tube warm-up and ensure equipment is working properly Fluoro phantom image is comparable to facility standard
2.	Laser Film Printer Quality Control	Weekly	Recommended control limits SMPTE Test Pattern                      Inverted gray scale 0% patch $2.45 \pm 0.15$ OD*              0% patch $2.50 \pm 0.15$ OD 10% patch $2.10 \pm 0.15$ OD              10% patch $2.25 \pm 0.15$ OD 40% patch $1.15 \pm 0.15$ OD              40% patch $1.35 \pm 0.15$ OD 90% patch $0.30 \pm 0.08$ OD              90% patch $0.30 \pm 0.08$ OD *OD = Optical Density The 5% patch should just be visible inside of the 0% patch. The 95% patch should be visible inside the 100% patch.
3.	For spot film and radiography, items 2, 4, 5, 7, 9, and 11 QC tests as specified in Table 1, Radiographic Quality Control Requirements	As specified in Table 1, Radiographic Quality Control Requirements	As specified in Table 1, Radiographic Quality Control Requirements
4.	Phantom Images (Fluoro Video Monitor)	Monthly	kVp $\pm 5\%$ , MA $\pm 10\%$ high & low contrast depends on phantom used
5.	Equipment Visual Checklist	Initially and quarterly	All tests passed
6.	Lead Aprons, Gloves, Gonadal and Thyroid Shield Integrity Check	Initially and annually	No breaks in protective garments
7.	Medical Physicist's QC Survey	Initially and annually	As required in N.J.A.C. 7:28-22.9
8.	Quality Assurance Program Review	Initially and annually	As required in N.J.A.C. 7:28-22.4(a)7

(b) The Department has prepared Compliance Guidance Documents, listed in N.J.A.C. 7:28-22.3(d)1 and 3, which may be used by the registrants in developing and implementing the quality assurance programs required by this Subchapter. The Compliance Guidance Documents are available from the Department, and may be obtained by contacting the Department at the Bureau of Radiological Health, P. O. Box 415, Trenton, NJ 08625-0415 and can be obtained from the Radiation Protection Program web page at "<http://www.state.nj.us/dep/rpp>".

(c) The registrant shall ensure that individuals performing quality control tests described in TABLE 2, Fluoroscopic Quality Control Requirements, have an appropriate level of training to perform the tests competently.

(d) If any of the test results from item 2 in TABLE 2, Fluoroscopic Quality Control Requirements, indicate that the laser film printer does not meet the standards in TABLE 2, the registrant shall immediately initiate steps to repair the laser film printer to meet the standards. Films shall not be processed until the processing meets the standards.

(e) If any of the test results from item 3 in TABLE 2, Fluoroscopic Quality Control Requirements, indicate that the x-ray equipment or processing does not meet the standards in TABLE 2, the registrant shall immediately initiate steps to bring the fluoroscopic equipment and processing into compliance. If processor sensitometry/densitometry does not meet the standards, films shall not be processed until the processing meets the sensitometry/densitometry standards.

(f) If any of the test results from items 4 through 6 in TABLE 2, Fluoroscopic Quality Control Requirements, indicate that the fluoroscopic equipment does not meet the standards in TABLE 2, the registrant shall immediately initiate steps to repair the fluoroscopic equipment to meet the standards. All such repairs shall be completed within 30 days.

(g) No person shall use or permit the use of film or processing chemicals beyond the expiration dates on the containers.

(h) The registrant shall ensure that records of each corrective action, repair and service are maintained for at least two years.

(i) The registrant shall ensure that test records for items 2 through 6 in TABLE 2, Fluoroscopic Quality Control Requirements, are maintained for at least one year.

(j) The registrant shall ensure that the initial Medical Physicist's Fluoroscopic QC Survey is permanently maintained and the records of the annual Medical Physicist's Fluoroscopic QC Survey are maintained for at least two years.

(k) The registrant shall ensure that the records of the Quality Assurance Program Review are maintained for at least two years.

7:28-22.7 QUALITY ASSURANCE PROGRAM FOR DIAGNOSTIC COMPUTED TOMOGRAPHY EQUIPMENT

(a) The registrant of any diagnostic computed tomography (CT) equipment used in the healing arts shall develop and continuously implement a quality assurance program that includes the following elements:

1. A quality assurance program manual that satisfies the requirements of N.J.A.C. 7:28-22.4;
2. Quality control tests, procedures, frequencies and standards including but not limited to, those identified in TABLE 3; Computed Tomography Quality Control Requirements;
3. An initial and annual thereafter (not to exceed 14 months) Medical Physicist's Computed Tomography QC Survey as specified in N.J.A.C. 7:28-22.10(a); and
4. A corrective action plan required by N.J.A.C. 7:28-22.4(a)4.

TABLE 3

<p>Computed Tomography Quality Control Requirements</p> <p>(To be performed by a licensed radiologic technologist, a qualified medical physicist, or a trained service technician)</p>			
Item	Required Test or Procedure	Frequency	Standard
1.	Equipment Function: Indicators, Mechanical, and other Safety Checks. Warm-up	Daily, each day x-rays are taken	Must work properly
2.	For film processing, items 2, 5, 7, and 11 QC tests as specified in Table 1, Radiographic Quality Control Requirements	As specified in Table 1, Radiographic Quality Control Requirements	As specified in TABLE 1, Radiographic Quality Control Requirements
3.	CT Number for Water	Daily	CT equipment or phantom manufacturers' specifications
4.	Field Uniformity	Daily	CT equipment or phantom manufacturers' specifications
5.	Laser Film Printer Quality Control	Weekly	<p>Recommended control limits      *OD = optical density</p> <p>SMPTE Test Pattern      Inverted gray scale</p> <p>0% patch 2.45± 0.15 OD*      0% patch 2.50+ 0.15 OD</p> <p>10% patch 2.10± 0.15 OD      10% patch 2.25± 0.15 OD</p> <p>40% patch 1.15± 0.15 OD      40% patch 1.35± 0.15 OD</p> <p>90% patch 0.30± 0.08 OD      90% patch 0.30± 0.08 OD</p> <p>The 5% patch should just be visible inside of the 0% patch</p> <p>The 95% patch should be visible inside the 100% patch</p>
6.	Low Contrast Resolution	Initially and Monthly	CT equipment or phantom manufacturers' specifications
7.	High Contrast Spatial Resolution	Initially and Monthly	CT equipment or phantom manufacturers' specifications
8.	Noise	Initially and Monthly	CT equipment or phantom manufacturers' specifications
9.	Table Position Indicator Accuracy	Initially and Monthly	±2 mm
10.	Scan Increment Accuracy	Initially and Monthly	±1 mm



TABLE 3 (Cont.)

<p style="text-align: center;">Computed Tomography Quality Control Requirements (To be performed by a licensed radiologic technologist, a qualified medical physicist, or a trained service technician)</p>			
Item	Required Test or Procedure	Frequency	Standard
11.	Scan Localization Light Accuracy	Initially and Monthly	$\pm 5$ mm
12.	Medical Physicist's QC Survey	Initially and annually	As required in N.J.A.C. 7:28-22.10
13.	Quality Assurance Program Review	Initially and annually	As required in N.J.A.C. 7:28-22.4(a)7

(b) The Department has prepared Compliance Guidance Documents, listed in N.J.A.C. 7:28-22.3(c)1 and 4, which may be used by the registrants in developing and implementing the quality assurance programs required by this Subchapter. The Compliance Guidance Documents are available from the Department, and may be obtained by contacting the Department at the Bureau of Radiological Health, P. O. Box 415, Trenton, NJ 08625-0415 and can be obtained from the Radiation Protection Program web page at "<http://www.state.nj.us/dep/rpp>".

(c) The registrant shall ensure that individual performing quality control tests described in TABLE 3, Computed Tomography Quality Control Requirements, is either a licensed radiologic technologist, a qualified medical physicist for the supervision of quality assurance programs for computed tomography equipment, or a trained service technician.

(d) If any of the test results from item 2 in TABLE 3, Computed Tomography Quality Control Requirements, indicate that the x-ray processing does not meet the standards in TABLE 3, the registrant shall immediately initiate steps to bring the processing into compliance. Films shall not be processed until the processing meets these standards.

(e) If any of the test results from items 3, 4, 6, 7, and 8 in TABLE 3, Computed Tomography Quality Control Requirements, indicate that the computed tomography equipment does not meet the standards in TABLE 3, the registrant shall immediately initiate steps to repair the computed tomography equipment to meet the standards. All corrective actions shall be completed within 30 days.

(f) If any of the test results from item 5 in TABLE 3, Computed Tomography Quality Control Requirements, indicate that the laser film printer does not meet the standards in TABLE 3, the registrant shall immediately initiate steps to repair the laser film printer to meet the standards. Films shall not be processed until the processing meets the standards.

(g) If any of the test results from items 9, 10, and 11 in TABLE 3, Computed Tomography Quality Control Requirements, indicate that the computed tomography equipment does not meet the standards in TABLE 3, the registrant shall immediately initiate steps to repair the computed tomography equipment to meet the standards. All corrective actions shall be completed within 15 days.

(h) No person shall use or permit the use of film or processing chemicals beyond the expiration dates on the containers.

(i) The registrant shall ensure that records of each corrective action, repair and service are maintained for at least two years.

(j) The registrant shall ensure that test records for items 2 through 11 in TABLE 3, Computed Tomography Quality Control Requirements, are maintained for at least one year.

(k) The registrant shall ensure that the initial Medical Physicist's Computed Tomography QC Survey is permanently maintained and the records of the annual Medical Physicist's Computed Tomography QC Survey are maintained for at least two years.

(l) The registrant shall ensure that the records of the Quality Assurance Program Review are maintained for at least two years.

#### 7:28-22.8 MEDICAL PHYSICIST'S RADIOGRAPHIC QC SURVEY

(a) The registrant of any medical diagnostic radiographic equipment used in the healing arts shall develop and continuously implement a quality assurance program. Such a program shall include an initial and thereafter an annual (not to exceed 14 months) Medical Physicist's Radiographic QC Survey performed by a qualified medical physicist for the supervision of quality assurance programs for diagnostic x-ray imaging. The Medical Physicist's Radiographic QC Survey shall include the elements identified in the TABLE 4, Medical Physicist's Radiographic QC Survey.

TABLE 4

MEDICAL PHYSICIST'S RADIOGRAPHIC QC SURVEY		
Item	Test	Standard
1.	Radiographic Unit Assembly Evaluation	As required at N.J.A.C. 7:28-15.3
2.	Collimation Assessment	As required at N.J.A.C. 7:28-15.3
3.	Collimator Illumination	As required at N.J.A.C. 7:28-15.3
4.	Half Value Layer	As required at N.J.A.C. 7:28-15.3
5.	mA Exposure Linearity	As required at N.J.A.C. 7:28-15.3
6.	kVp Accuracy/Reproducibility	As required at N.J.A.C. 7:28-15.3
7.	Timer Accuracy/Reproducibility	As required at N.J.A.C. 7:28-15.3
8.	Automatic Exposure Control, Reproducibility, Tracking, Density Control	As required at N.J.A.C. 7:28-15.3
9.	Entrance Skin Exposure (ESE) Measurement	Determine ESE for common exam and compare with National Evaluation of X-ray Trends (NEXT) data available in the Compliance Guidance Documents referenced at N.J.A.C. 7:28-22.3(c)2
10.	Image Quality Evaluation (Recommendation)	Established standard for phantom test tool used
11.	Review Facility/Technologist QC Test Records	Review QC tests for proper procedure and corrective action
12.	Physicist Report and Recommendations	Communicate results and recommendations to registrant

(b) A qualified medical physicist for the supervision of quality assurance programs for diagnostic x-ray imaging may delegate the performance testing required for the Medical Physicist's Radiographic QC Survey in N.J.A.C. 7:28-22.8(a) to a qualified medical physicist assistant in radiography who holds a valid Certificate issued by the Department except that the qualified medical physicist for the supervision of a quality assurance programs for diagnostic x-ray imaging may not delegate items 10-12 in TABLE 4, Medical Physicist's Radiographic QC Survey.

(c) The qualified medical physicist for the supervision of quality assurance programs for diagnostic x-ray imaging shall be fully responsible for the Medical Physicist's Radiographic QC Survey and all of its measurements, conclusions and recommendations.

(d) Prior to delegating any performance testing permitted in (b) above, the qualified medical physicist shall provide adequate training and instruction to the qualified medical physicist assistant in the specific test procedures to be delegated. This training and instruction shall be in addition to the minimum level of training and instruction required for the qualified medical physicist assistant in radiography to obtain the Certificate from the Department in accordance with N.J.A.C. 7:28-22.13(c).

(e) All Medical Physicist's Radiographic QC Survey reports shall be signed by the qualified medical physicist for the supervision of quality assurance programs for medical diagnostic imaging, and also by the qualified medical physicist assistant in radiography. The Medical Physicist's Radiographic QC Survey report shall identify which tests, if any, were performed by the qualified medical physicist assistant in radiography.

(f) For the Radiographic QC Survey:

1. If any of the Radiographic QC survey test results from items 1 through 8 in TABLE 4, Medical Physicist's Radiographic QC Survey, indicate that the x-ray equipment does not meet the standards in TABLE 4, the registrant shall immediately initiate corrective actions to meet the standards. All corrective actions shall be completed within 30 days.

2. For item 9 in TABLE 4, Medical Physicist's Radiographic QC Survey, the medical physicist shall determine the entrance skin exposure (ESE) for the common examination performed using the equipment and compare the test results for the ESE with the most recent relevant National Evaluation of X-ray Trends (NEXT) data available in the Compliance Guidance Documents referenced in N.J.A.C. 7:28-22.3(d)2.

3. For item 10 in TABLE 4, Medical Physicist's Radiographic QC Survey, the medical physicist should compare the phantom test tool image with the manufacturer's specifications.

4. For item 11 in TABLE 4, Medical Physicist's Radiographic QC Survey, the medical physicist shall review the completed QC test records that have been performed properly by the registrant for the previous year to ensure the tests were performed and corrective actions taken.

5. For item 12 in TABLE 4, Medical Physicist's Radiographic QC Survey, the medical physicist shall prepare a report that reviews the overall quality assurance program being carried out by the registrant and contains:

i. Raw data, results and recommendations of the medical physicist's equipment tests performed in accordance with items 1 through 10 in TABLE 4, Medical Physicist's Radiographic QC Survey, and

ii. Results and recommendations of the medical physicist's review performed in accordance with item 11 in TABLE 4, Medical Physicist's Radiographic QC Survey.

#### 7:28-22.9 MEDICAL PHYSICIST'S FLUOROSCOPIC QC SURVEY

(a) The registrant of any medical diagnostic fluoroscopic equipment used in the healing arts shall develop and continuously implement a quality assurance program. Such a program shall include an initial and thereafter an annual (not to exceed 14 months) Medical Physicist's Fluoroscopic QC Survey performed by a qualified medical physicist for the supervision of quality assurance programs for diagnostic x-ray imaging. The Medical Physicist's Fluoroscopic QC Survey shall include the elements identified in TABLE 5, Medical Physicist's Fluoroscopic QC Survey. If the standard for any test in TABLE 5 refers to a manufacturer's specification and no such specification exists, then that standard does not apply.

TABLE 5

MEDICAL PHYSICIST'S FLUOROSCOPIC QC SURVEY		
Item	Test	Standard
1.	Fluoroscopic Unit Assembly Evaluation	As required at N.J.A.C. 7:28-15.5
2.	Entrance Exposure Rate to Image Intensifier	Fluoroscopic equipment manufacturers' specifications
3.	Patient Entrance Exposure Rate	Fluoroscopic equipment manufacturers' specifications
4.	Maximum Exposure Rate	As required at N.J.A.C. 7:28-15.5
5.	High Contrast Resolution/Low Contrast for Fluoroscopy Video Monitor	Fluoroscopic equipment manufacturers' specifications
6.	Spot Film Automatic Exposure Control (AEC) System Performance	Fluoroscopic equipment manufacturers' specifications
7.	High Contrast Resolution/Low Contrast for Fluoroscopy Image Recording System (i.e. spot film device, cine system, videotape system, etc.)	Fluoroscopic equipment manufacturers' specifications
8.	Half-Value Layer	Fluoroscopic equipment manufacturers' specifications
9.	Kilovoltage	Fluoroscopic equipment manufacturers' specifications
10.	Fluoroscopic and Spot Film Collimation Assessment	As required at N.J.A.C. 7:28-15.5
11.	Review of Facility and Technologist QC Tests	Review QC tests for proper procedure and corrective action
12.	Physicist Report and Recommendations	Communicate results and recommendations to registrant

(b) A qualified medical physicist for the supervision of quality assurance programs for diagnostic x-ray imaging may delegate the performance testing required for the Medical Physicist's Fluoroscopic QC Survey in N.J.A.C. 7:28-22.9(a) to a qualified medical physicist assistant in fluoroscopy who holds a valid Certificate issued by the Department except as provided below:

1. The qualified medical physicist for the supervision of a quality assurance programs for diagnostic x-ray imaging may not delegate items 8, 11, and 12 in TABLE 5, Medical Physicist's Fluoroscopic QC Survey; and
2. The qualified medical physicist for the supervision of quality assurance program for diagnostic x-ray imaging may not delegate any items in TABLE 5, Medical Physicist's Fluoroscopic QC Survey, if the fluoroscopic equipment is digital or located in a dedicated interventional special procedure suite.

(c) Notwithstanding (b) above, the qualified medical physicist for the supervision of quality assurance programs for diagnostic x-ray imaging shall be fully responsible for the Medical Physicist's Fluoroscopic QC Survey and all of its measurements, conclusions and recommendations.

(d) Prior to delegating any performance testing permitted in (b) above, the qualified medical physicist shall provide adequate training and instruction to the qualified medical physicist assistant in fluoroscopy in the type of equipment and the specific test procedures to be delegated. This training and instruction shall be in addition to the minimum level of training and instruction required for the qualified medical physicist assistant in fluoroscopy to obtain the Certificate from the Department in accordance with N.J.A.C. 7:28-22.13(d).

(e) All Medical Physicist's Fluoroscopic QC Survey reports shall be signed by the qualified medical physicist for the supervision of quality assurance programs for medical diagnostic imaging, and also by the qualified medical physicist assistant in fluoroscopy. The Medical Physicist's Fluoroscopic QC Survey report shall identify which tests, if any, were performed by the qualified medical physicist assistant.

(f) For the Fluoroscopic QC Survey:

1. If any of the Fluoroscopic QC survey test results from items 1 through 10 in TABLE 5, Medical Physicist's Fluoroscopic QC Survey, indicate that the x-ray equipment does not meet the standards established in TABLE 5, the registrant shall immediately initiate corrective actions to meet the standards. All corrective actions shall be completed within 30 days.

2. For item 11 in TABLE 5, Medical Physicist's Fluoroscopic QC Survey, the medical physicist shall review the completed QC test records that have been performed by the registrant for the previous year to ensure the tests were performed properly and corrective actions taken.



3. For item 12 in TABLE 5, Medical Physicist's Fluoroscopic QC Survey, the medical physicist shall prepare a report that reviews the overall quality assurance program being carried out by the registrant and contains:

i. Raw data, results and recommendations of the medical physicist's equipment tests performed in accordance with items 1 through 11 in TABLE 5, Medical Physicist's Fluoroscopic QC Survey, and

ii. Results and recommendations of the medical physicist's review performed in accordance with item 12 in TABLE 5, Medical Physicist's Fluoroscopic QC Survey.

#### 7:28-22.10 MEDICAL PHYSICIST'S COMPUTED TOMOGRAPHY QC SURVEY

(a) The registrant of any medical diagnostic computed tomography equipment used in the healing arts shall develop and continuously implement a quality assurance program. Such a program shall include an initial and thereafter an annual (not to exceed 14 months) Medical Physicist's Computed Tomography QC Survey performed by a qualified medical physicist for the supervision of quality assurance programs for computed tomography equipment. The Medical Physicist's Computed Tomography QC Survey shall include the elements identified in the TABLE 6, Medical Physicist's Computed Tomography QC Survey. If the standard for any test in TABLE 6 refers to a manufacturer's specification and no such specification exists, then that standard does not apply.

TABLE 6

MEDICAL PHYSICIST'S COMPUTED TOMOGRAPHY QC SURVEY		
Item	Test	Standard
1.	Scan Increment Accuracy	$\pm 1$ mm
2.	Scan Localization Light Accuracy	$\pm 5$ mm
3.	Patient Dose (Multiple Scan Average Dose-MSAD or Computed Tomography Dose Index-CTDI)	CT equipment manufacturers' specifications and scan protocol or phantom manufacturer's specifications
4.	Pre-Patient Collimation Accuracy	Manufacturers' specifications
5.	Contrast Scale	CT equipment or phantom manufacturers' specifications
6.	CT Number for Water	CT equipment or phantom manufacturers' specifications
7.	Slice Thickness	CT equipment or phantom manufacturers' specifications
8.	Field Uniformity	CT equipment or phantom manufacturers' specifications
9.	Low Contrast Resolution	CT equipment or phantom manufacturers' specifications
10.	High Contrast Resolution	CT equipment or phantom manufacturers' specifications
11.	Noise	CT equipment or phantom manufacturers' specifications
12.	Scan Protocol Review	Ensure that both the adult and pediatric scan protocols are separate and unique
13.	Review of Facility and Technologist QC Tests	Review QC tests for proper procedure and corrective action
14.	Physicist Report and Recommendations	Communicate results and recommendations to registrant

(b) A qualified medical physicist for the supervision of quality assurance programs for computed tomography equipment may not delegate any items in TABLE 6, Medical Physicist's Computed Tomography QC Survey.

(c) The qualified medical physicist for the supervision of quality assurance programs for computed tomography equipment shall be fully responsible for the Medical Physicist's Computed Tomography QC Survey and all of its measurements, conclusions and recommendations.

(d) All Medical Physicist's Computed Tomography QC Survey reports shall be signed by the qualified medical physicist for the supervision of quality assurance programs for computed tomography equipment.

(e) For the Computed Tomographic QC Survey

1. If any of the Computed Tomographic QC Survey test results from items 1 through 4 in TABLE 6, Medical Physicist's Computed Tomography QC Survey, indicate that the CT equipment does not meet the standards established in TABLE 6, the registrant shall immediately initiate corrective actions to meet the standards. All corrective actions shall be completed within 15 days.

2. If any of the Computed Tomographic QC Survey test results from items 5 through 11 in TABLE 6, Medical Physicist's Computed Tomography QC Survey, indicate that the CT equipment does not meet the standards established in TABLE 6, the registrant shall immediately initiate corrective actions to meet the standards. All corrective actions shall be completed within 30 days.

3. For item 12 in TABLE 6, Medical Physicist's Computed Tomography QC Survey, the medical physicist shall ensure that both the adult and pediatric scan protocols are separate and unique.

4. For item 13 in TABLE 6, Medical Physicist's Computed Tomography QC Survey, the medical physicist shall review the completed QC test records that have been performed by the registrant for the previous year to ensure the tests were performed properly and corrective actions taken.

5. For item 14 in TABLE 6, Medical Physicist's Computed Tomography QC Survey, the medical physicist shall prepare a report that reviews the overall quality assurance program being carried out by the registrant and contains:

i. Raw data, results and recommendations of the medical physicist's equipment tests performed in accordance with items 1 through 12 in TABLE 6, Medical Physicist's Computed Tomography QC Survey, and

ii. Results and recommendations of the medical physicist's review performed in accordance with item 14 in TABLE 6, Medical Physicist's Computed Tomography QC Survey.

#### 7:28-22.11 QUALITY ASSURANCE FOR X-RAY BONE DENSITOMETER EQUIPMENT

(a) The registrant of any x-ray bone densitometer shall continuously carry out a quality assurance program consistent with the equipment manufacturer's recommendations.

(b) The registrant shall ensure that the items listed below describing the operation and calibration of the equipment are maintained at the facility:

1. Copy of the manufacturer's specific quality assurance program recommendations and the operating manual;
2. Documentation of the quality assurance program and quality control tests for the x-ray bone densitometer;
3. Instructions on the use of the phantom(s), or testing appropriate for the system and allowable variations for the indicated parameters; and
4. Radiation Safety manual as required in N.J.A.C. 7:28-15.9(a)8.

(c) The registrant shall ensure that the manufacturer's recommended test procedures and frequencies for the x-ray bone densitometer are followed and the test results are recorded.

(d) The registrant shall ensure that the records of tests required by (c) above are maintained for at least one year.

#### 7:28-22.12 QUALIFICATIONS OF MEDICAL PHYSICISTS AND MEDICAL PHYSICIST ASSISTANTS

(a) Only a person who holds a valid Certificate issued by the Department in accordance with N.J.A.C. 7:28-22.13(a) and meets at least one of the following criteria may perform the duties of a "Qualified medical physicist for the supervision of quality assurance programs for diagnostic x-ray imaging" as required in this Subchapter:

1. Certification by one of the following agencies in the specialty listed:
  - i. The American Board of Radiology in Diagnostic Radiological Physics or Radiological Physics;
  - ii. The American Board of Medical Physics in Diagnostic Imaging Physics;
  - iii. Certification issued by the Fellowship in the Canadian College of Physicists in Medicine that is equivalent to 1i. or 1ii. above; or

iv. Certification by other national certifying boards, which may be recognized by the Commission, where the person seeking recognition as a qualified medical physicist for the supervision of quality assurance programs for diagnostic x-ray imaging has petitioned the Commission in writing and where the Commission has issued a written determination that the certification in question meets the criteria of a qualified medical physicist pursuant to this section;

2. A master's or doctorate degree from an accredited college in radiological health, radiation sciences, physics, chemistry, environmental sciences, engineering or a related field and at least three years of professional, clinical and technical experience in the field of radiological physics, including the performance of quality control tests of diagnostic x-ray imaging, that was obtained under the supervision of an individual who meets the requirements of this section, except the requirement to hold a certificate issued by the Department; or

3. Any individual who does not meet at least one of the foregoing criteria may petition the Commission for recognition as a qualified medical physicist for the supervision of quality assurance programs for diagnostic x-ray imaging. The individual shall submit a written petition to the Commission that contains sufficient information on his or her educational, professional, clinical, technical, employment and/or any other relevant experience. The Commission may approve any such petition based on its determination that the individual demonstrates competence to act as a qualified medical physicist for the supervision of quality assurance programs for diagnostic x-ray imaging.

(b) Only a person who holds a valid Certificate issued by the Department in accordance with N.J.A.C. 7:28-22.13(a) and meets at least one of the following criteria may perform the duties of a "Qualified medical physicist for the supervision of quality assurance programs for computed tomography equipment" as required in this subchapter:

1. Certification by one of the following agencies in the specialty listed:

i. The American Board of Radiology in Diagnostic Radiological Physics or Radiological Physics;

ii. The American Board of Medical Physics in Diagnostic Imaging Physics;

iii. Certification issued by the Fellowship in the Canadian College of Physicists in Medicine that is equivalent to 1i. or 1ii. above; or

iv. Certification by other national certifying boards, which may be recognized by the Commission, where the person seeking recognition as a qualified medical physicist for the supervision of quality assurance programs for computed tomography x-ray equipment has petitioned the Commission in

writing and where the Commission has issued a written determination that the certification in question meets the criteria of a qualified medical physicist pursuant to this section;

2. A master's or doctorate degree from an accredited college in radiological health, radiation sciences, physics, chemistry, environmental sciences, engineering or a related field and at least three years of professional, clinical and technical experience in the field of radiological physics, including the performance testing of computed tomography equipment that was obtained under the supervision of an individual who meets the requirements of this section, except the requirement to hold a certificate issued by the Department; or

3. Any individual who does not meet at least one of the foregoing criteria may petition the Commission for recognition as a qualified medical physicist for the supervision of quality assurance programs for computed tomography equipment. The individual shall submit a written petition to the Commission that contains sufficient information on his or her educational, professional, clinical, technical, employment and/or any other relevant experience. The Commission may approve any such petition based on its determination that the individual demonstrates competence to act as a qualified medical physicist for the supervision of quality assurance programs for computed tomography equipment.

(c) Only a person who holds a valid Certificate issued by the Department in accordance with N.J.A.C. 7:28-22.13(a), meets one of the criteria contained in 1 through 5 below and also meets criterion 6 may perform the duties of a "Qualified Medical Physicist Assistant in Radiography":

1. Is currently ARRT certified in general radiography or holds a current New Jersey license as a diagnostic radiologic technologist and has five years of experience as a practicing diagnostic technologist, one year of which shall include performing quality control tests on radiographic equipment; or

2. Is currently ARRT certified in both general radiography and in quality management with three years of experience as a practicing diagnostic radiologic technologist; or

3. Has a bachelors degree from an accredited college or university in biology, chemistry, radiation sciences, physics, engineering or mathematics and four years of technical experience performing quality control tests on radiographic equipment in the field of radiological health; or

4. Has a master's degree or a doctorate degree from an accredited college or university in radiological health, radiation sciences, physics, chemistry, environmental sciences, engineering or a related field and two years of technical experience performing quality control tests on radiographic equipment in the field of radiological health; or

5. Any individual who does not meet at least one of the foregoing criterion may petition the Commission for recognition as a qualified medical physicist assistant in radiography. The individual shall submit a written petition to the Commission that contains sufficient information on his or her educational, professional, clinical, technical, employment and/or any other relevant experience. The Commission may approve any such petition based on its determination that the individual demonstrates competence to act as a qualified medical physicist assistant in radiography.

6. In addition to the criteria 1 through 5 above, the individual shall document to the satisfaction of the Department, that the individual has received, at a minimum, training and instruction on performing QC tests and has performed quality control tests 1 through 9 of TABLE 4, Medical Physicist's Radiographic QC Survey in N.J.A.C. 7:28-22.8 on at least five radiographic units while under the immediate supervision of a qualified medical physicist for the supervision of quality assurance programs for diagnostic x-ray imaging.

(d) Only a person who holds a valid Certificate issued by the Department in accordance with N.J.A.C. 7:28-22.13(a), meets one of the criteria contained in 1 through 5 below and also meets criterion 6 may perform the duties of a "Qualified medical physicist assistant in fluoroscopy":

1. Is currently ARRT certified in general radiography or holds a current New Jersey license as a diagnostic radiologic technologist and has five years of experience as a practicing diagnostic technologist, one year of which shall include performing quality control tests in fluoroscopy; or

2. Is currently ARRT certified in both general radiography and in quality management with three years of experience as a practicing diagnostic radiologic technologist; or

3. Has a bachelors degree from an accredited college or university in biology, chemistry, radiation sciences, physics, engineering or mathematics and four years of technical experience performing quality control tests on fluoroscopic equipment in the field of radiological health; or

4. Has a master's degree or a doctorate degree from an accredited college or university in radiological health, radiation sciences, physics, chemistry, environmental sciences, engineering or a related field and two years of technical experience performing quality control tests on fluoroscopic equipment in the field of radiological health; or

5. Any individual who does not meet at least one of he foregoing criterion may petition the Commission for recognition as a qualified medical physicist assistant in fluoroscopy. The individual shall submit a written petition to the Commission that contains sufficient information on his or her educational, professional, clinical, technical, employment and/or any other relevant experience. The Commission may approve any such petition based

on its determination that the individual demonstrates competence to act as a qualified medical physicist assistant in fluoroscopy.

6. In addition to the criteria 1 through 5 above, the individual shall document to the satisfaction of the Department, that the individual has received, at a minimum, training and instruction on performing QC tests and has performed quality control tests 1 through 6, and 9 of TABLE 5, Medical Physicist's Fluoroscopic QC Survey in N.J.A.C. 7:28-22.9 on at least five fluoroscopic units while under the immediate supervision of a qualified medical physicist for the supervision of quality assurance programs for diagnostic x-ray imaging.

#### 7:28-22.13 CERTIFICATION AND DECERTIFICATION OF QUALIFIED MEDICAL PHYSICISTS AND QUALIFIED MEDICAL PHYSICIST ASSISTANTS

(a) The Department may issue a certificate valid for up to two years to persons who submit an application to the Department documenting to the satisfaction of the Department that the person meets the qualifications specified in N.J.A.C. 7:28-22.12(a), (b), (c) or (d).

(b) No person shall perform any QC test that is part of the Medical Physicist's Radiographic, Fluoroscopic or Computed Tomography QC Survey without a current certificate issued by the Department, pursuant to this Subchapter.

(c) Each certificate shall expire on December 31 of the first odd numbered year following the year of issuance. A certificate may be renewed for a biennial term commencing January 1 of every even numbered year and expiring on December 31 of the following year.

(d) Any person who was issued a certificate pursuant to (a) above, shall display the certificate upon request.

(e) In order to maintain a current certificate, a person shall renew his or her certificate by submitting a completed renewal application to the Department at least 30 days prior to the date of expiration.

(f) A person who wishes to renew an expired certificate shall submit a renewal application to the Department. Such certificate shall be renewed for a period extending from the date of renewal to midnight, December 31 of the next odd number year.

(g) Any person who submits an application for a certificate or certificate renewal to the Department shall include as an integral part of said application, an application fee as follows:



1. Initial certification fee
  - i. \$50.00 for one category
  - ii. \$25.00 for each additional category
2. Renewal Fee: \$25.00 for each category.

(h) The fees accompanying the Application or biennial renewal application shall be in the form of a check or money order made payable to the Treasurer, State of New Jersey. Fees are non-refundable. Applications for certification are available from the Bureau of Radiological Health, P. O. Box 415, Trenton, NJ 08625-0415.

(i) A person certified by this Subchapter shall inform the Department of any change in the address of record within 30 days of such change.

(j) The Department, in addition to any penalties authorized by the Act, may deny an application for a certificate and may revoke or suspend a certificate if the person has:

1. Violated any provision of this chapter;
2. Disregarded the safety, health and welfare of the public in the performance of his or her professional duties;
3. Developed or implemented a QA/QC program or performed a Medical Physicist's QC Survey that is not in conformance with standards in this subchapter; or
4. Affixed his or her signature to any QA/QC program, report or QC survey, which was not prepared by him or her.

#### 7:28-22.14 COMPLIANCE SCHEDULE

(a) Registrants required to develop and implement quality assurance programs in accordance with N.J.A.C. 7:28-22.3, shall comply with the following schedule:

1. All out-of-state registrants and registrants whose x-ray equipment is registered in Essex and Gloucester counties shall have quality assurance programs fully implemented, including a completed initial medical physicist QC survey, by February 28, 2001.
2. Registrants whose x-ray equipment is registered in Bergen County shall have quality assurance programs fully implemented, including a completed initial medical physicist QC survey, by March 31, 2001.
3. Registrants whose x-ray equipment is registered in Hudson, Somerset, and Burlington counties shall have quality assurance programs fully implemented, including a completed initial medical physicist QC survey, by April 30, 2001.
4. Registrants whose x-ray equipment is registered in Union, Mercer and Cape May counties shall have quality assurance programs fully

implemented, including a completed initial medical physicist QC survey, by June 30, 2001.

5. Registrants whose x-ray equipment is registered in Morris and Ocean counties shall have quality assurance programs fully implemented, including a completed initial medical physicist QC survey, by July 31, 2001.

6. Registrants whose x-ray equipment is registered in Passaic and Camden counties shall have quality assurance programs fully implemented, including a completed initial medical physicist QC survey, by August 31, 2001.

7. Registrants whose x-ray equipment is registered in Sussex, Monmouth, Salem, and Cumberland counties shall have quality assurance programs fully implemented, including a completed initial medical physicist QC survey, by October 31, 2001.

8. Registrants whose x-ray equipment is registered in Middlesex, Warren, Hunterdon, and Atlantic counties shall have quality assurance programs fully implemented, including a completed initial medical physicist QC survey, by November 30, 2001.

#### 7:28-22.15 SEVERABILITY

If any provision, or part thereof, of this Subchapter, or the application thereof to any person or circumstance, is held invalid, such invalidity shall not affect the remainder of, or other provisions or applications of, this Subchapter which can be given effect without the invalid provision, portion or application. To this end, the provisions of this Subchapter are declared to be severable.